

Temperature Compensation for Acousto-Optic Devices

Abstract

Methods and apparatus for compensating for temperature variations in acousto-optic devices are described. An acousto-optic tunable device according to the invention features an acousto-optic substrate having an acoustic wave transducer positioned on the acousto-optic substrate. A temperature sensor is positioned in thermal communication with the acousto-optic substrate. The temperature sensor generates an electrical signal that is related to a temperature of the acousto-optic substrate. A processor generates a control signal in response to the electrical signal generated by the temperature sensor. An oscillator receives the control signal and a frequency of the oscillator is changed in response to the control signal in order to maintain phase-matching criteria of the acousto-optic tunable device as the temperature of the acousto-optic substrate changes.